What has Landsat seen in the last year+?

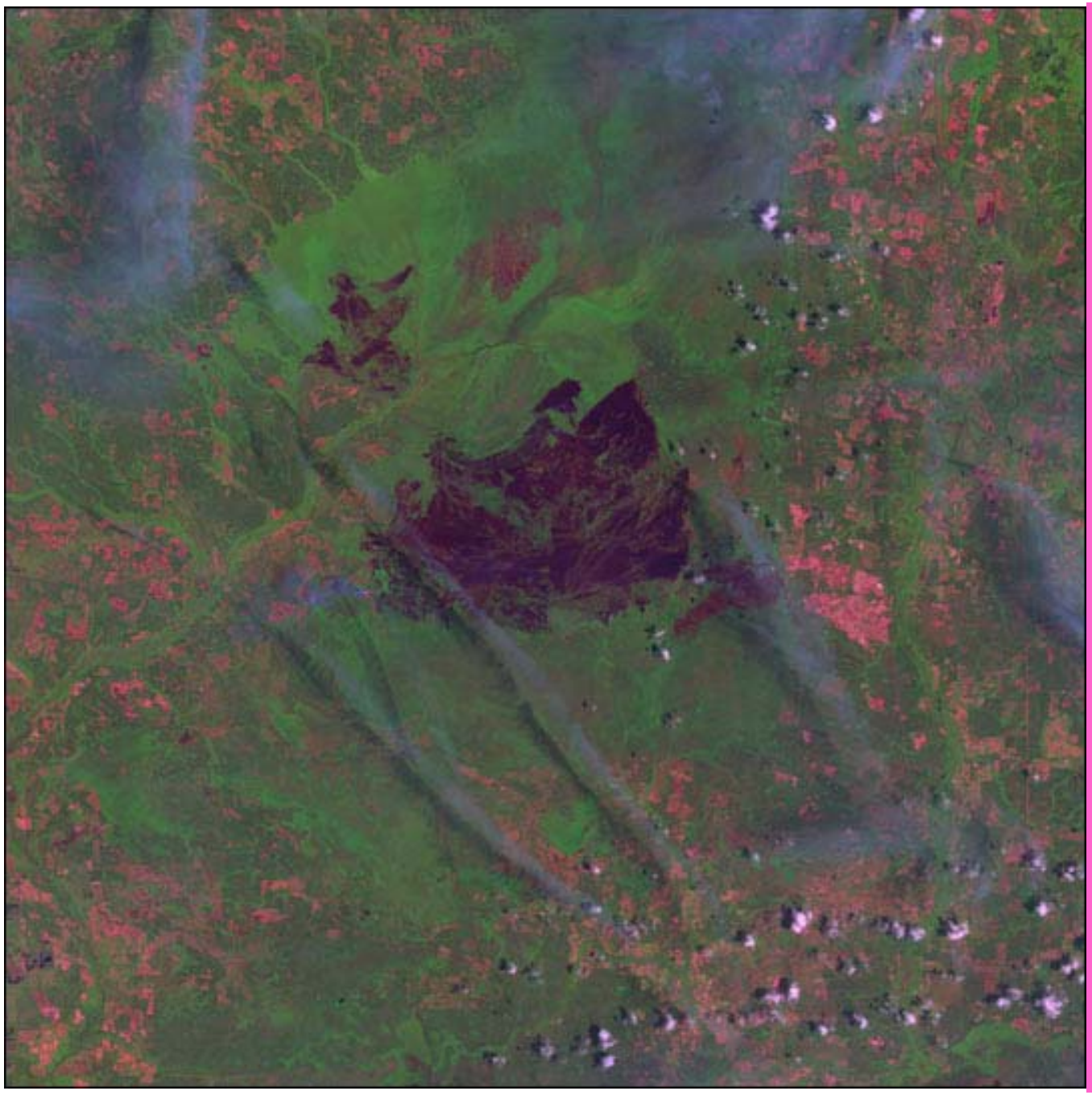
17 Sep 02

Current Events

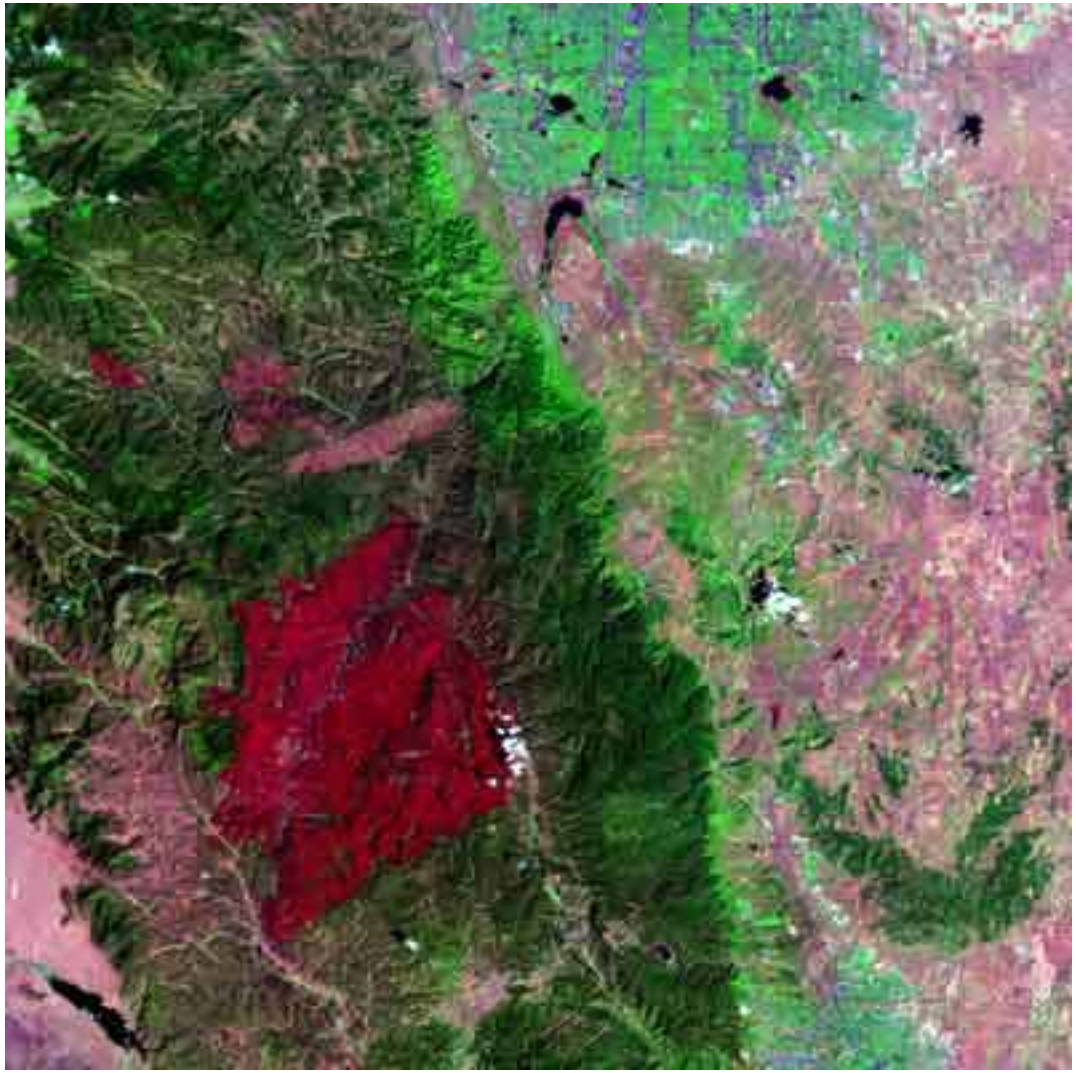
This true-color image was taken by the Enhanced Thematic Mapper Plus (ETM+) aboard the Landsat 7 satellite on September 12, 2001, at roughly 11:30 a.m. Eastern Daylight Savings Time.

In an area north of the city of Al-Basrah, Iraq, which borders Iran, a former wetland has been drained and walled off. Now littered with minefields and gun emplacements, it is a staging area for military exercises.


FIRE
WIND
EARTHQUAKES
FLOODS



Fires were raging in the Okefenokee National Wildlife Refuge in southern Georgia in May 2002. Three fires, collectively known as the Blackjack Bay Complex Fire, burned over 95,000 acres in the 400,000 acre refuge. This image was acquired by Landsat 7's ETM+ sensor on May 15, 2002. This is a false-color composite using infrared, near-infrared, and green wavelengths. The green areas show lush vegetation while dark brown areas are burn scars from the fires. The large scar in the center of the image is the Blackjack 02 Fire. The smaller scars to the northwest and southeast are the Bay Creek and Number One Island Fires, respectively.



This infrared image of the Hayman Springs fire area shows the massive fire scar caused by the June wild fire. The scar measures approximately 15 miles east to west and 22 miles north to south. In the upper part of the image you can see the southern portion of Denver, CO.

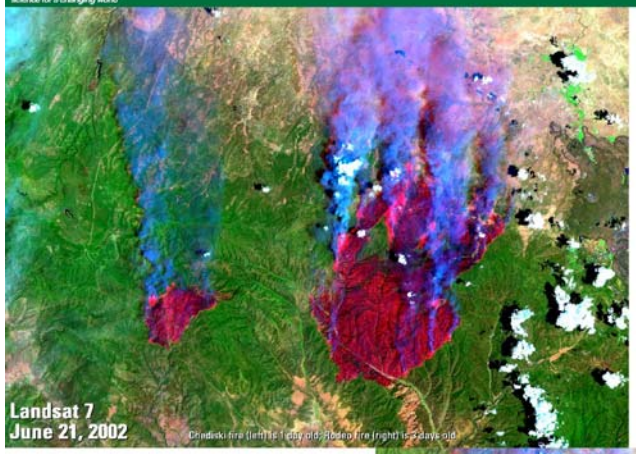
USGS
science for a changing world

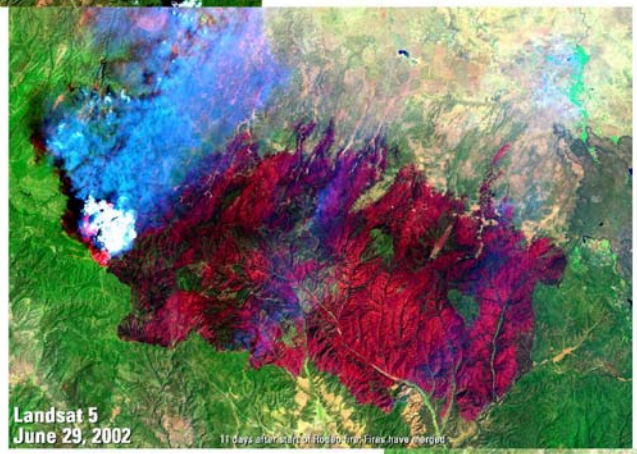
NASA

Rodeo-Chediski Wildfires

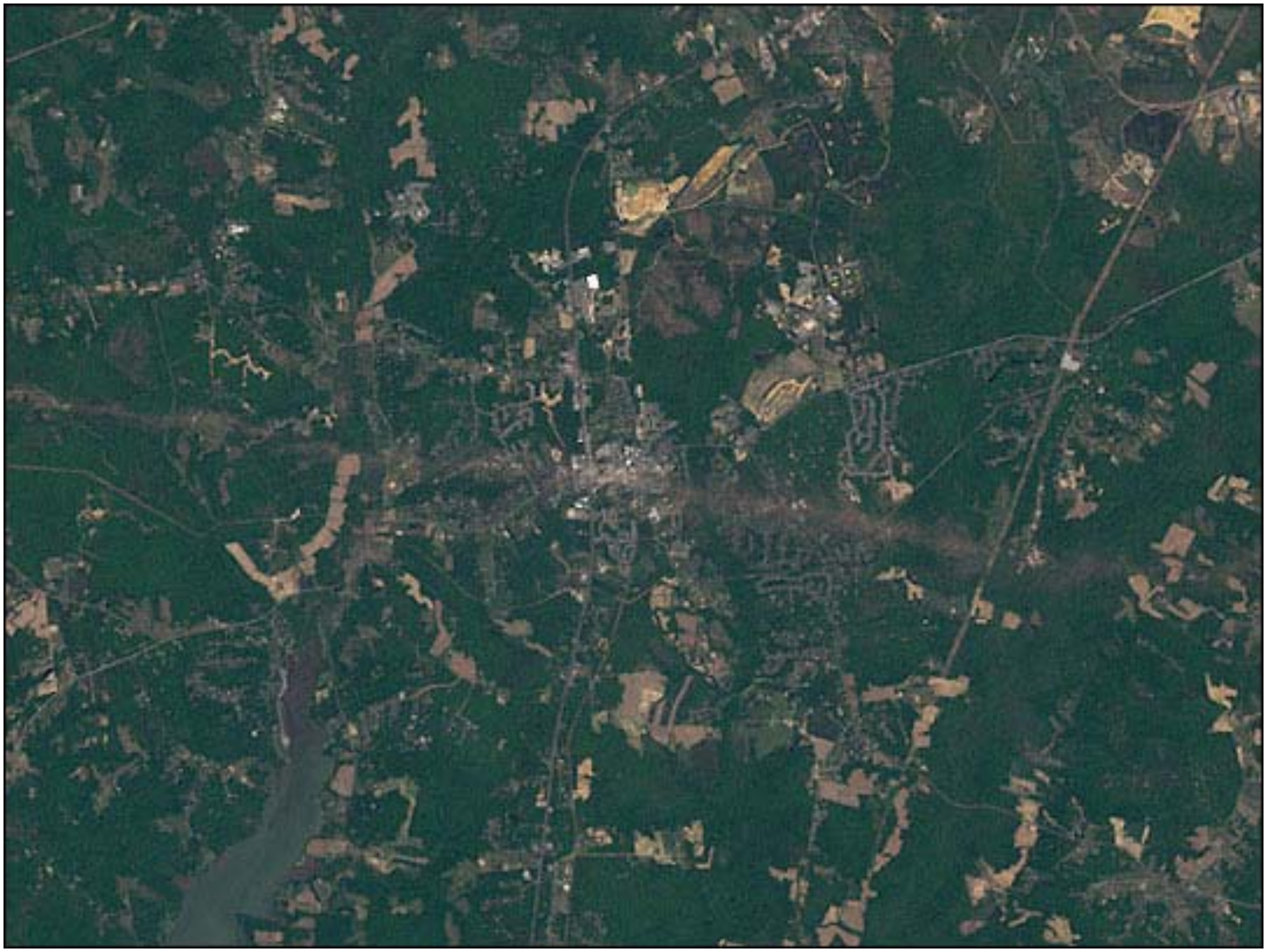
These images show the Rodeo fire, which began on June 18th, and the Chediski fire which began on June 20th. When they merged together, the combined Rodeo-Chediski fire became the largest wildfire in Arizona history.

Together these wildfires have destroyed over 468,000 acres in the Apache-Sitgreaves National Forest and Fort Apache reservation. 400 homes have been destroyed, and over 30,000 people have been evacuated. It has cost the state of Arizona more than $2 million a day, a total of over $32 million, to fight the Rodeo-Chediski fire.





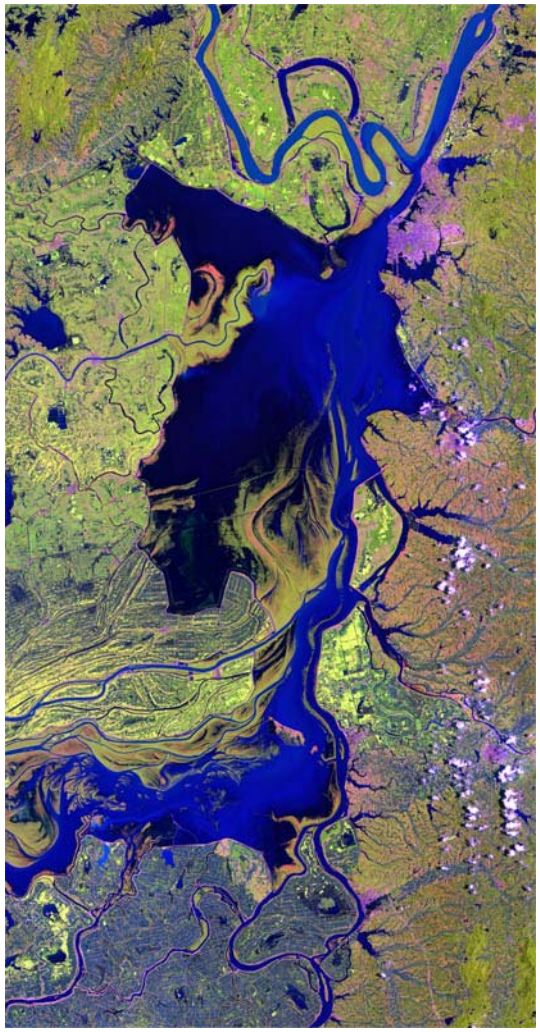
U.S. Department of the Interior
U.S. Geological Survey



Four days after a Force 5 tornado devastated the Maryland town of La Plata, this Landsat 7 scene shows the entire length of the tornado's path -- roughly 39 km (24 miles).

On January 26, 2001, the Kachchh region in western India suffered the most deadly earthquake in India's history. This stereoscopic view of landforms northeast of the city of Bhuj depicts geologic structures that are of interest in the study of the tectonic processes that may have led to that earthquake. These geologic features are simple examples of how digital elevation data can stereoscopically enhance satellite imagery to provide a direct input to geologic studies.

Credit: Image courtesy SRTM and Landsat science teams.

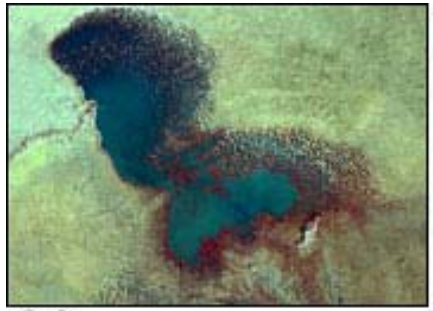


July 22, 2001

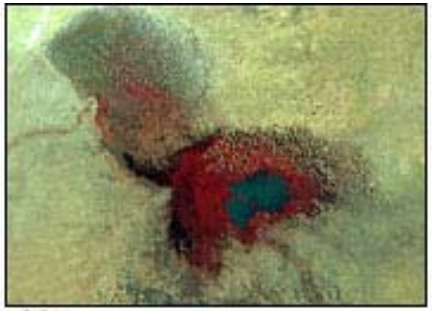
July 9, 2002

Landsat 7 data are being used to monitor a major rise in water levels in the Dongting Lake in the Hunan Province of China. Torrential rains have enlarged the lake, the second largest lake in China, creating a potential flooding zone that could affect 10 million people and 850,000 hectares of fertile farmland.

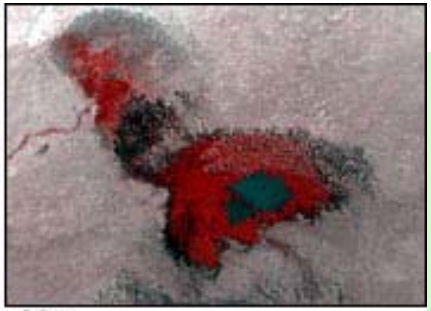
OUR ENVIRONMENT



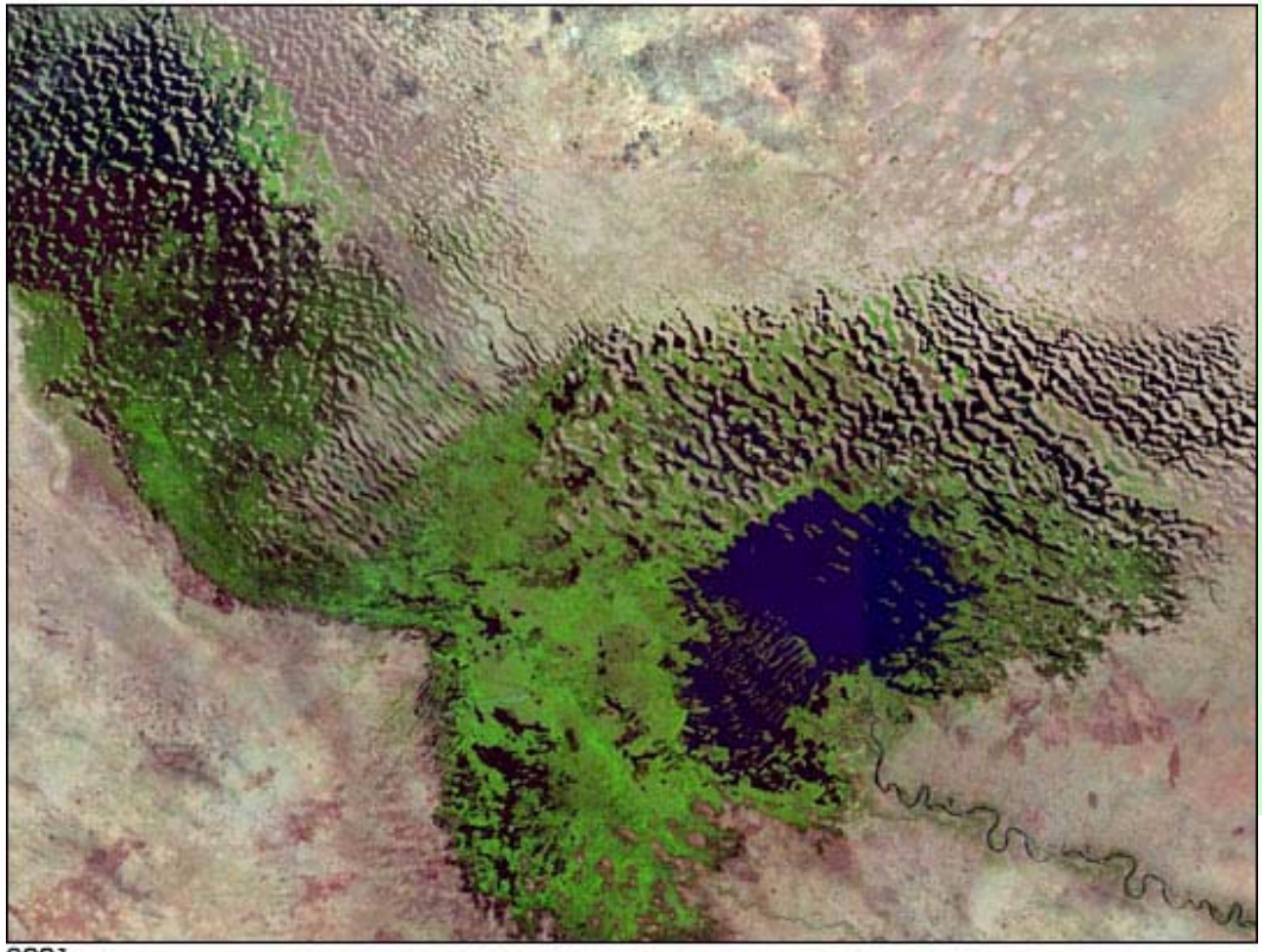
1973



1987



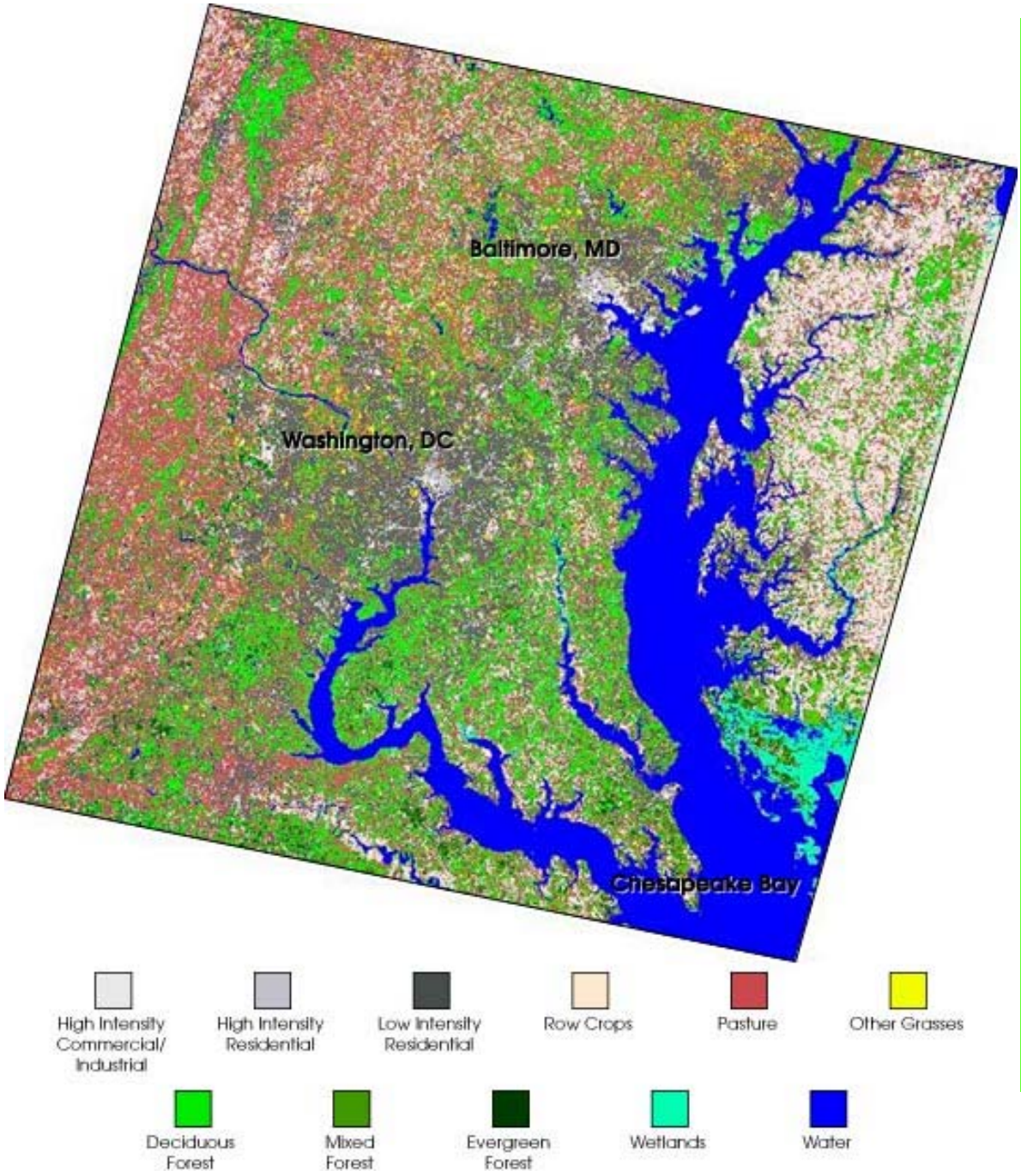
1997



2001

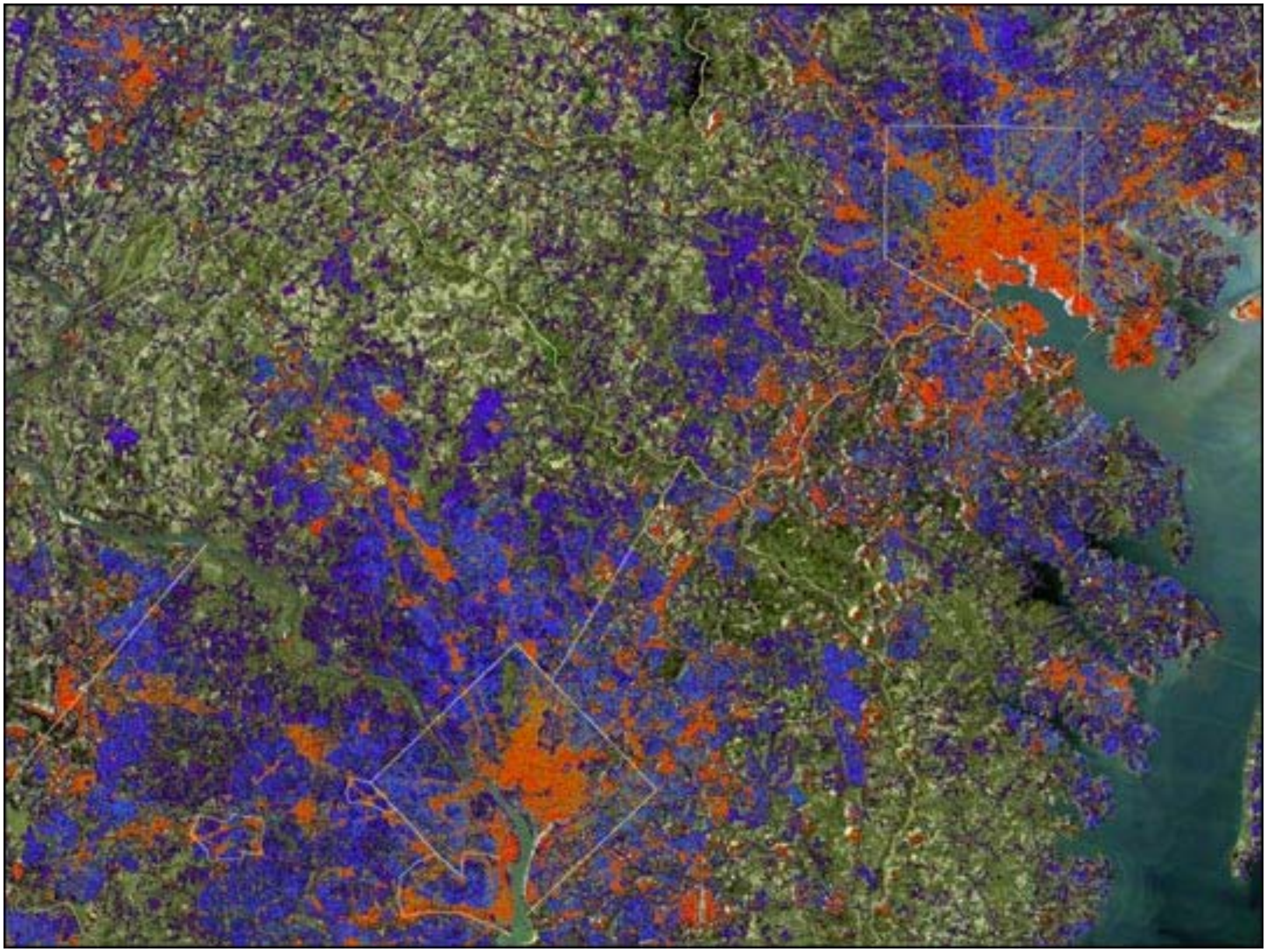
Lake Chad, once one of the African continent's largest bodies of fresh water, has dramatically decreased in size due to climate change and human demand for water. The lake is now 1/20th of the size it was 35 years ago. Found at the intersection of four different countries in West Africa (Chad, Niger, Nigeria, and Cameroon), Lake Chad has been the source of water for massive irrigation projects. In addition, the region has suffered from an increasingly dry climate, experiencing a significant decline in rainfall since the early 1960s. Between 1983 and 1994, the amount of water diverted for purposes of irrigation quadrupled from the amount used in the previous 25 years. The red color denotes vegetation on the lake bed and the ripples on the western edge of the lake denote sand dunes formed by the wind.

Credit: Images courtesy NASA GSFC Scientific Visualization Studio and Landsat 7 Project Science Office.



"Smarter" land use planning and better estimates of polluted water runoff across the 64,000 square-mile (110,000-square-kilometer) Chesapeake Bay watershed are on the horizon thanks to new land cover maps being produced by the Mid-Atlantic Regional Earth Science Applications Center (RESAC) at the University of Maryland. These maps, generated by overlaying images from NASA's Landsat 7, will provide a more precise assessment of the presence and amount of different land cover types including residential development, wetlands, forests and crop lands. The Maryland Department of Planning has said it will use the maps in the state's new "smart growth" initiative, while the parks commission in Montgomery County, Md., plans to assess the extent of forests in its parks.

Michelle Thawley, Mid-Atlantic RESAC

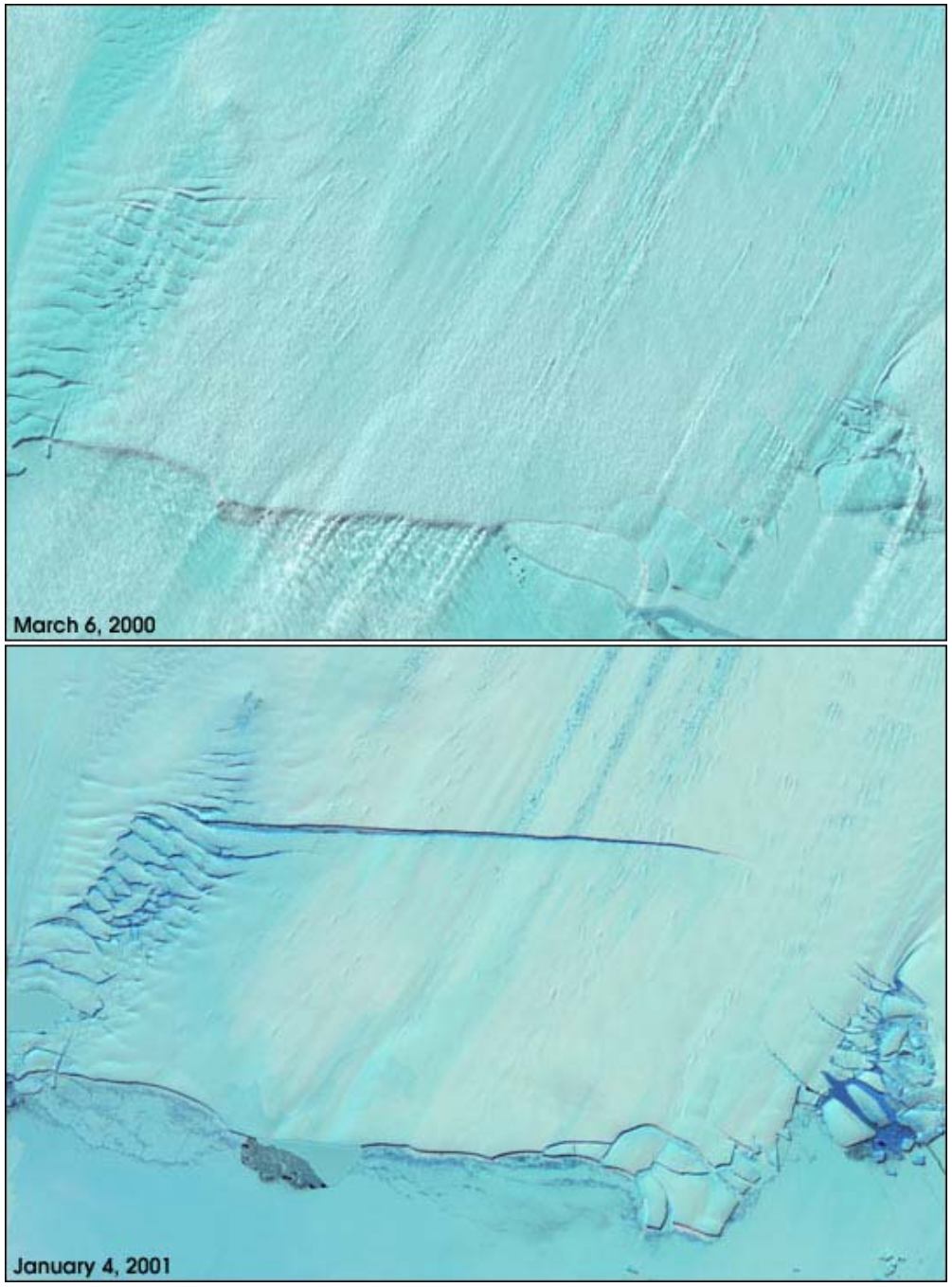


The image above shows the extent of impervious surfaces, such as roads and parking lots, in and around Washington and Baltimore; it can indicate where large amounts of storm water runs off. Concentrated runoff leads to erosion and elevated discharge of soil and chemicals into rivers, streams, and ground water. Colors indicate concentration of impervious surfaces: Red = High concentrations; Blue = Moderate concentrations; Green = Low concentrations.

Credit: Image courtesy Stu Snodgrass, NASA GSFC Scientific Visualization Studio, based on data from Landsat 7 and IKONOS.

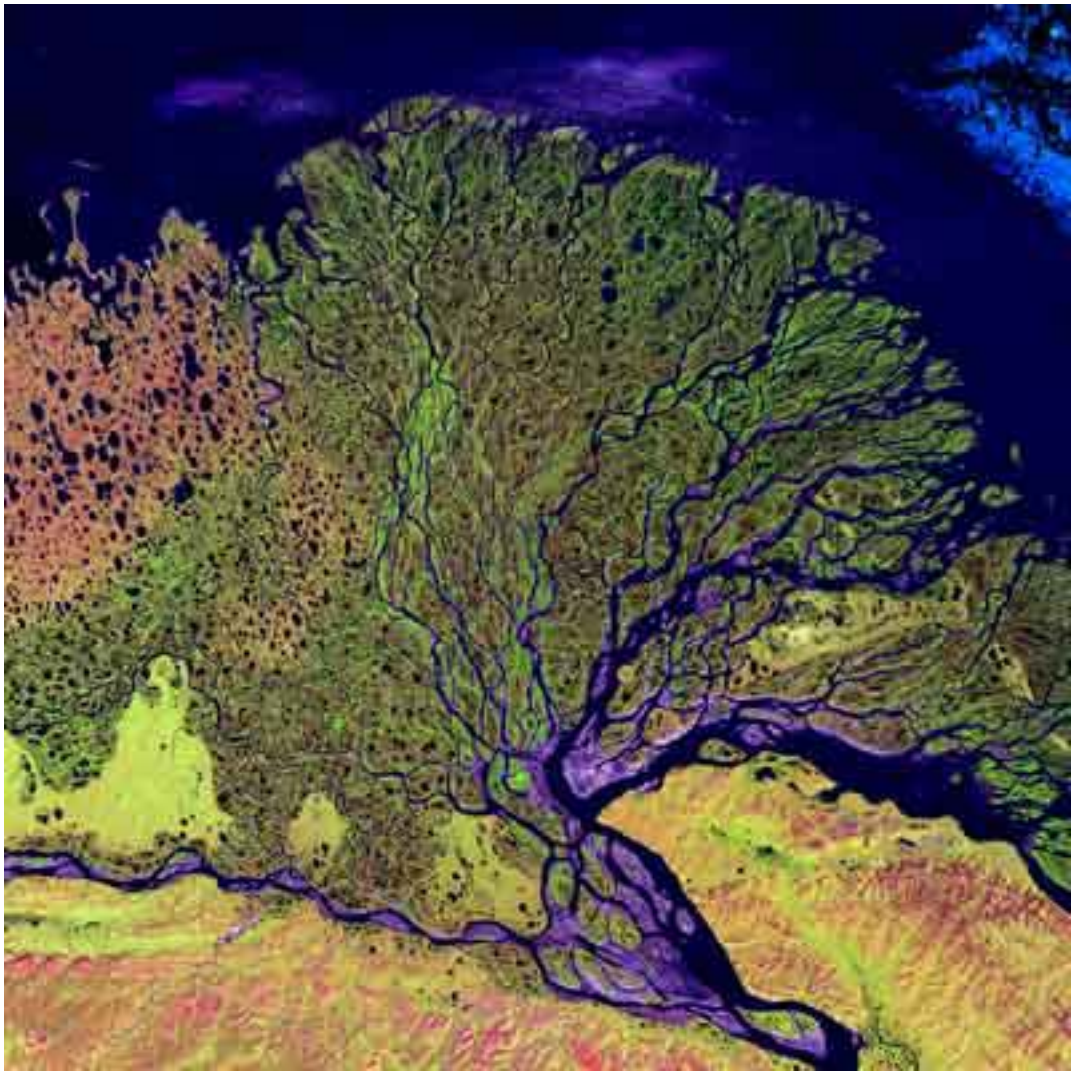
There is a new crack in Antarctica's icy armor. The earliest stages of the formation of a massive iceberg was captured by NASA's Landsat 7 satellite on January 4, 2001. As is evident in this pair of Landsat 7 images, there was no crack in the March 2000 scene, but by January the crack had grown to more than 25 km (15) miles long, stretching more than two-thirds of the way across the Pine Island Glacier.

According to NASA Glaciologist Robert Bindschadler, most of this crack formed very rapidly, in less than five weeks. Currently, the crack is growing much more slowly, at about 13 meters (40 feet) a day. Bindschadler's prediction is that the crack will result in the calving of a major iceberg in probably less than 18 months.

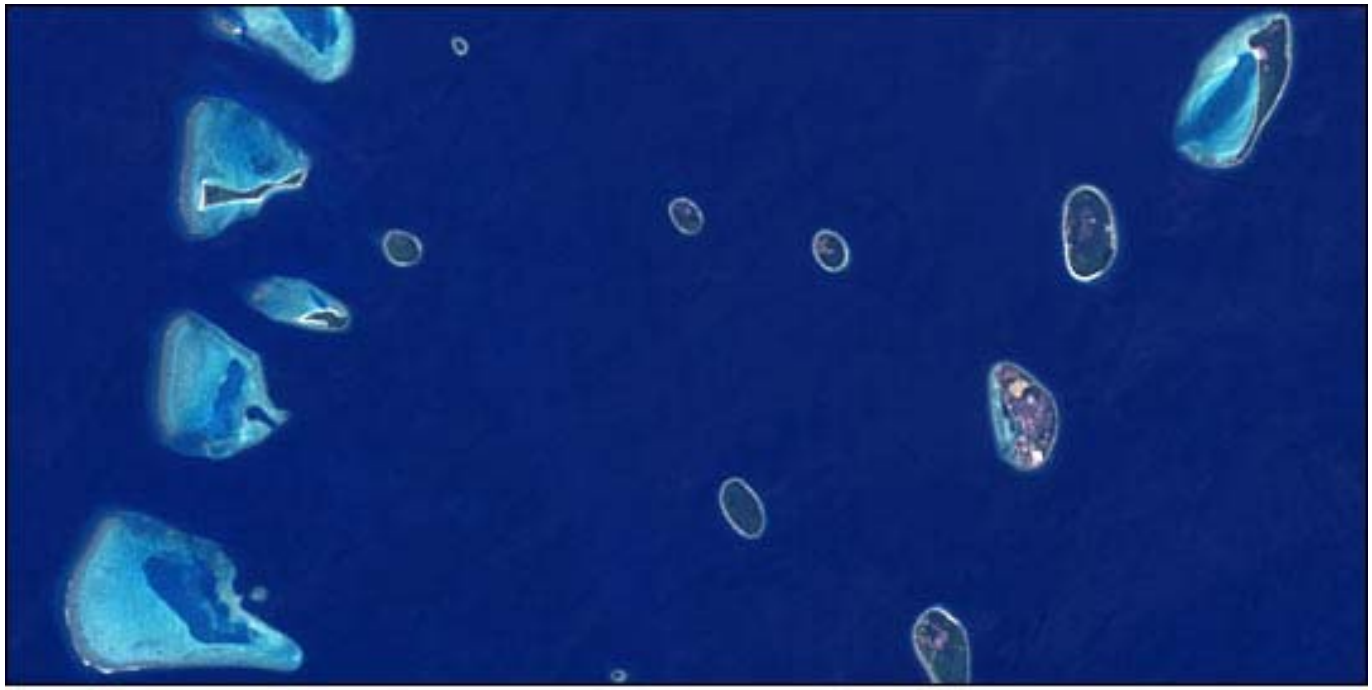


Credit: Image courtesy NASA GSFC Scientific Visualization Studio, based on data from the Landsat 7 science team.

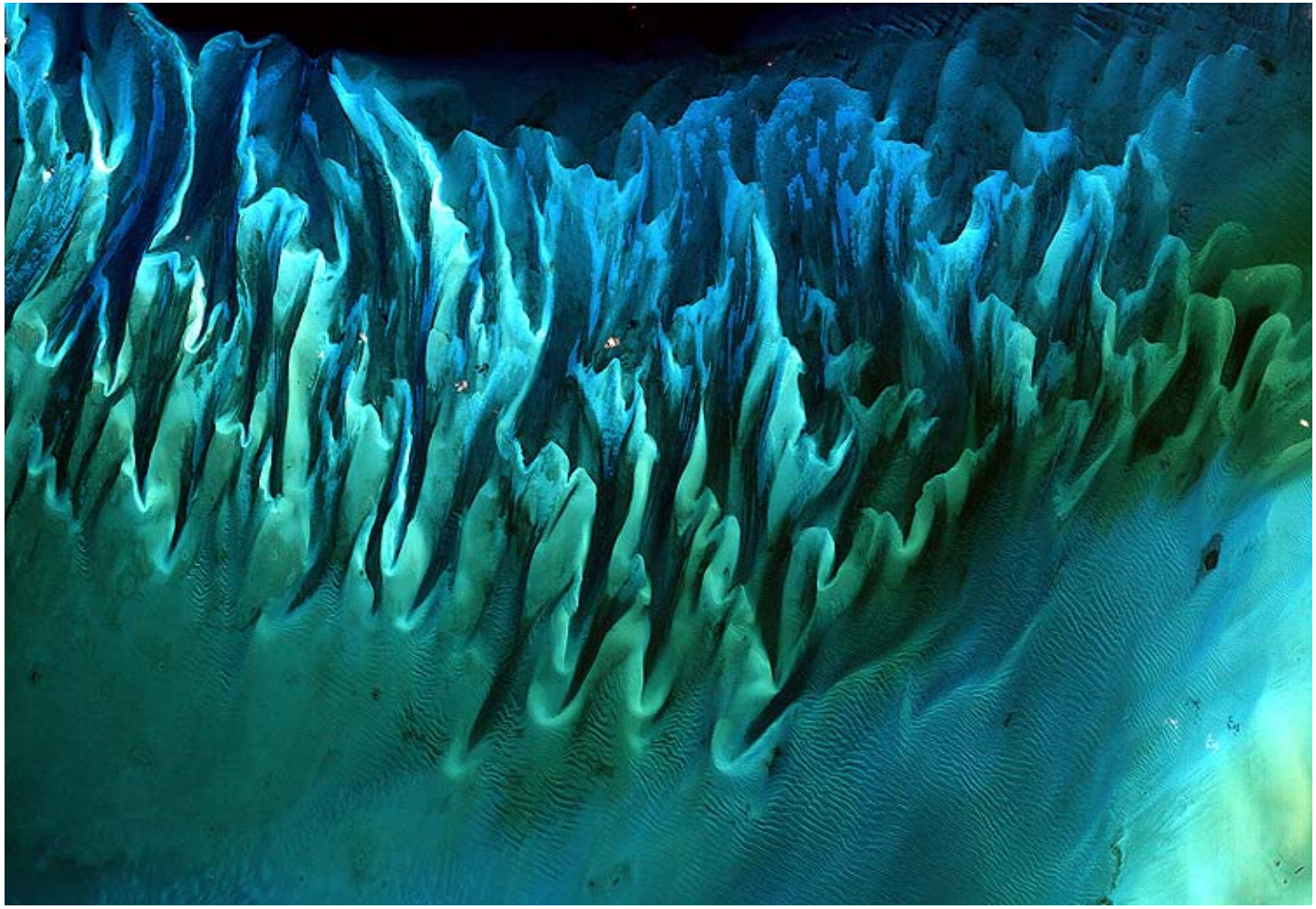

OUR WORLD AS ART



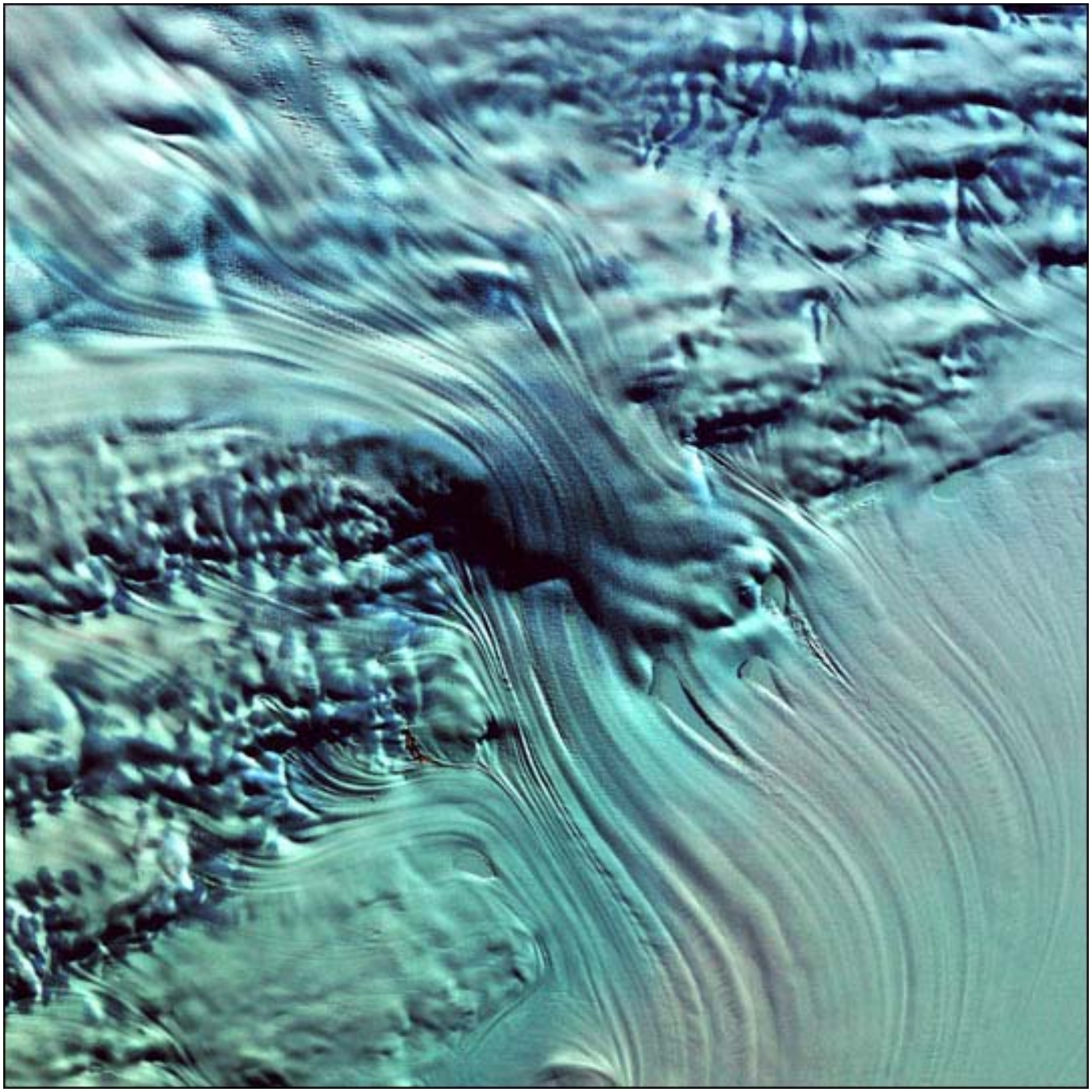
The Lena River, some 2,800 miles (4,400 km) long, is one of the largest rivers in the world. The Lena Delta Reserve is the most extensive protected wilderness area in Russia. It is an important refuge and breeding grounds for many species of Siberian wildlife.



Atolls are, in fact, some of the most complex and vibrant structures on the planet. Built diligently over thousands of years by tiny, sea anenome-like coral polyps, these ring shaped coral structures can be tens of kilometers in diameter with individual reefs large enough to support lush tropical islands and even small cities. The top picture is a true-color image from the Enhanced Thematic Mapper Plus (ETM+) aboard Landsat 7. The bottom photograph shows a reef and the flat, forested interior of an island in the Maldives.



This is a subset of a Landsat 7 image in the Bahama islands. It shows the patterns in the sand and the seagrass caused by the motion of the water.



The Lambert Glacier in Antarctica is the world's largest glacier. The focal point of this image is an icefall that feeds into the Lambert glacier from the vast ice sheet covering the polar plateau. Ice flows like water, albeit much more slowly. Cracks can be seen in this icefall as it bends and twists on its slow-motion descent 1300 feet (400 meters) to the glacier below.